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## Understanding Transportation in Urban China - Local Residents vs Migrant Workers

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# UNDERSTANDING TRANSPORTATION IN URBAN CHINA – Local Residents vs Migrant Workers



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**Jenny H. Liu, Yiping Fang & Zhanxin Zhang**  
PSU Transportation Seminar – April 2016

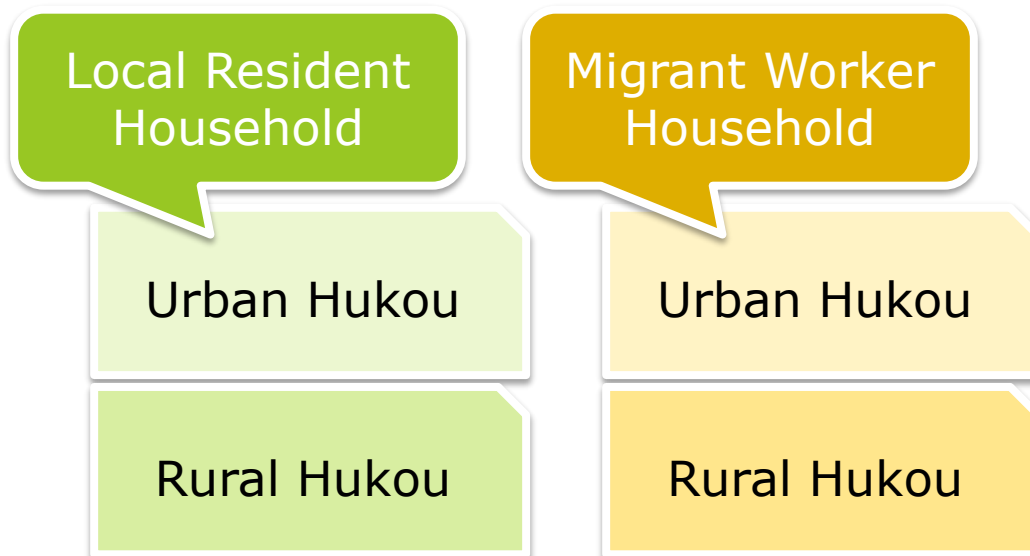
## Research Question

- To examine and characterize differences in transportation expenditures for **local resident households** vs **migrant worker households** in China

# Motivations

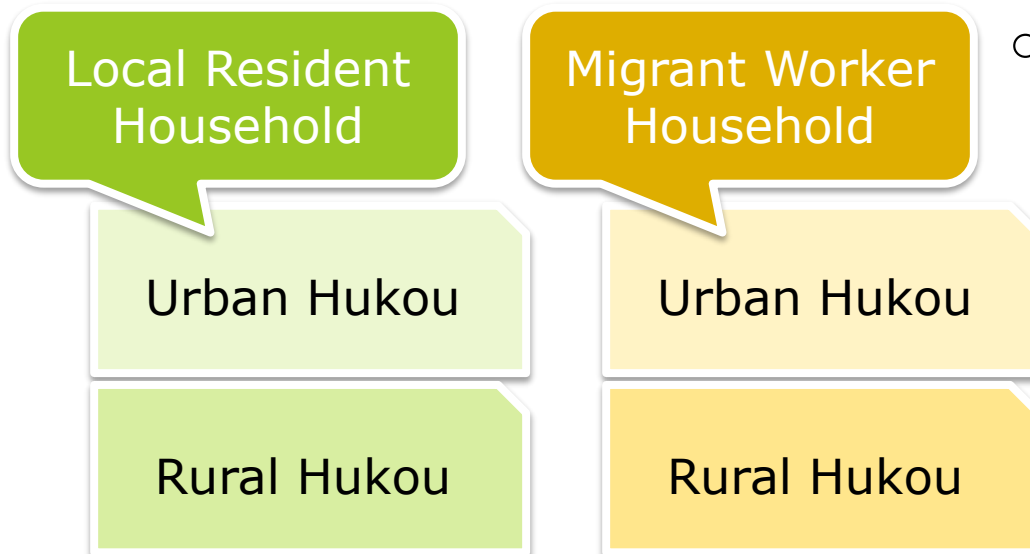
- Household expenditures
- Energy consumption → Climate Change
- Role of transportation
  - **in social and economic mobility**
  - **as social determinant of health**
- *Hukou* (户口) – access to public services & entitlements

# *Hukou* (户口) – Household Registration



- Introduced in 1958
  - Urban social stability during economic recession and political crisis
  - Structural social inequities (Zhao and Howden-Chapman 2010)
- Reforms began in 1980s
  - Introduced *temporary residence certificates*

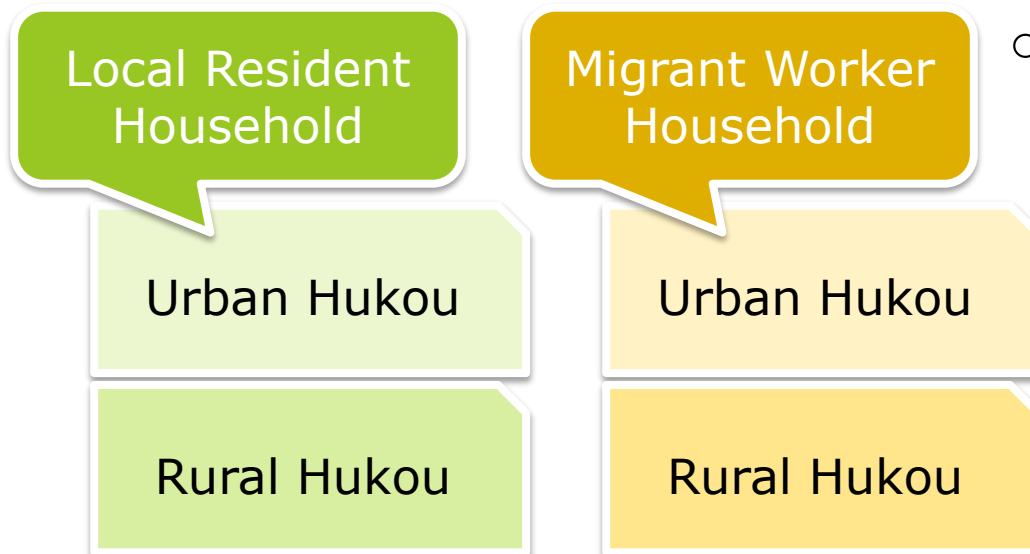
# Hukou (户口) – Household Registration



- Migrants tend to reside in *villages in the city* (Zhao and Howden-Chapman 2010)

- Not eligible for government subsidized affordable housing
- Lack of credit market to purchase on private market
- Not eligible for secondary housing market
- Housing rent is low in *villages in the city* (Wu 2002)

# *Hukou* (户口) – Household Registration



- Migrants tend to have fewer employment opportunities (Zhao and Howden-Chapman 2010)
  - Not eligible for state and collective sector jobs
  - Not eligible for state-owned enterprise (SOE) jobs
  - Not eligible for commercial jobs that are under the management of local authorities

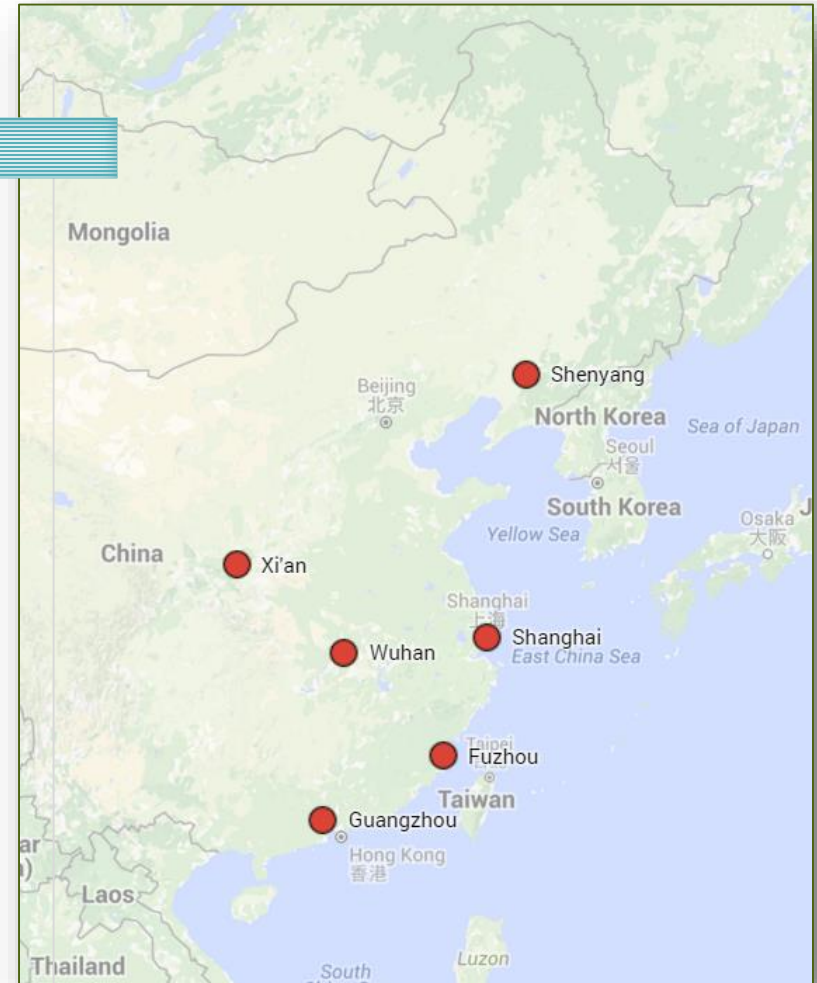
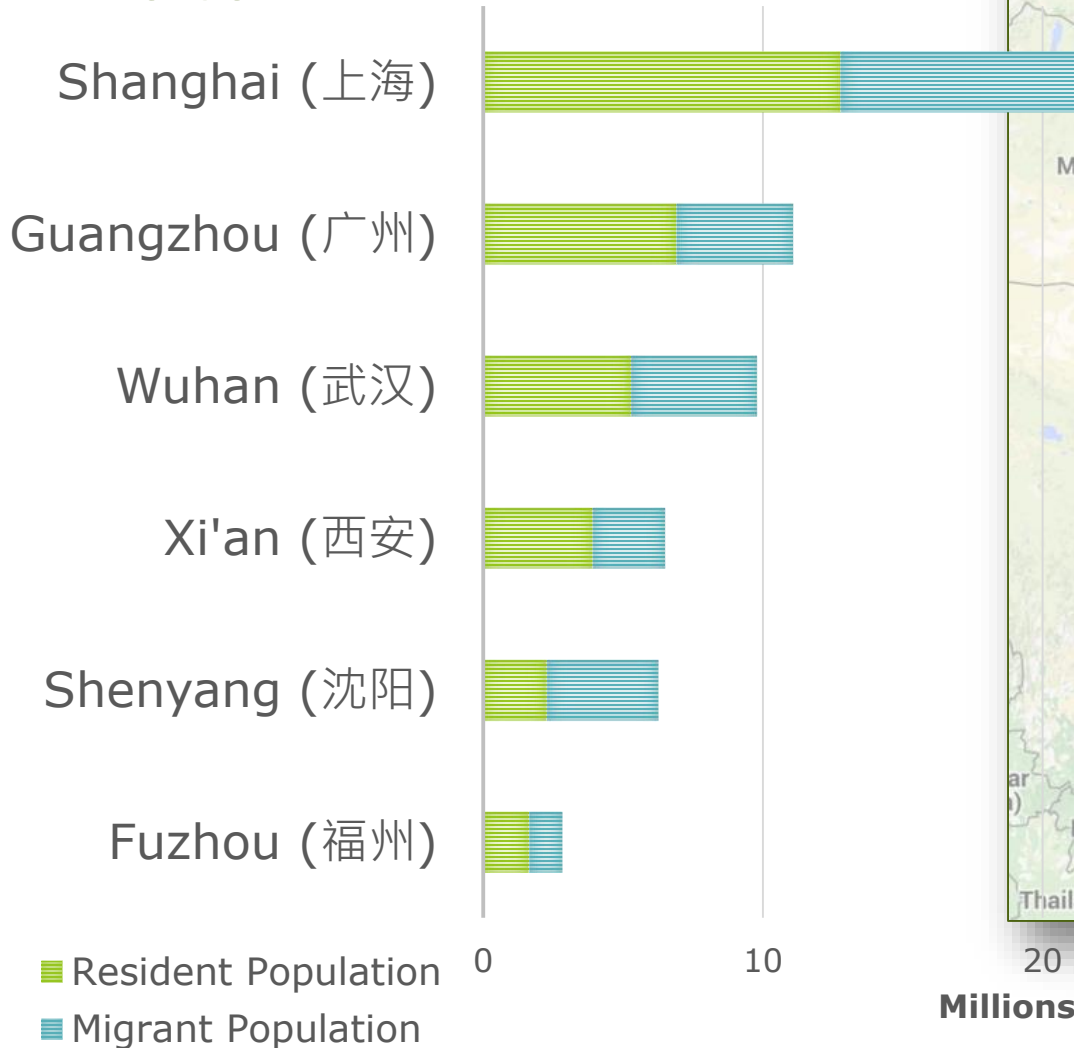


## Data

- Chinese Academy of Social Sciences (CASS) Institute of Population and Labor Economics (IPLE)
  - **Employment and Social Protection Survey (2009)**
    - Stratified random sampling
      - City → *Jiedao* (subdistricts) → neighborhoods
      - 4200 resident households
      - 3600 migrant households

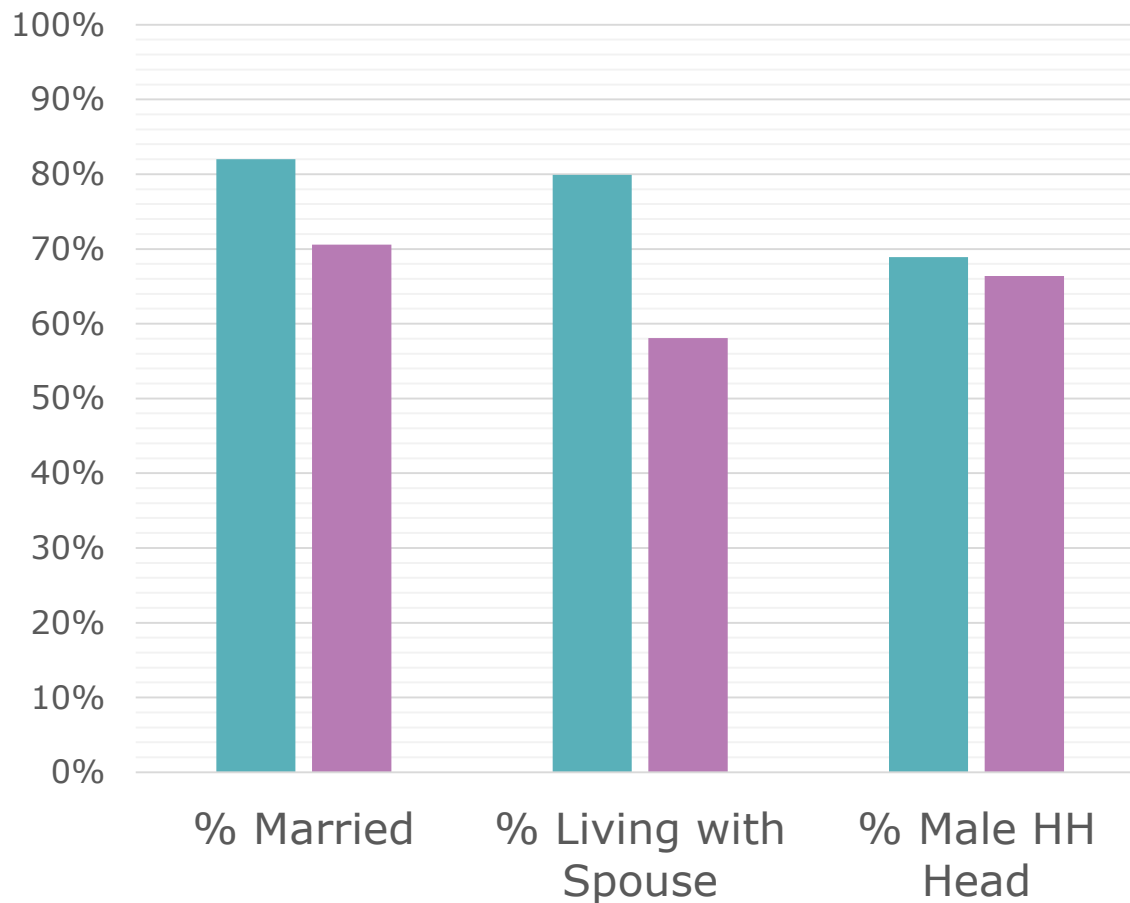


# Data



City	Urban Area Population	Migrant Population	Migrant (%)	Urban Pop. Density (pop/km <sup>2</sup> )	City GDP per capita (2009 RMB)
<b>Shanghai (上海)</b>	22,265,426	9,495,701	42.65%	3630	\$107,479
<b>Guangzhou (广州)</b>	11,070,654	4,154,808	37.53%	1084	\$114,943
<b>Wuhan (武汉)</b>	9,780,644	4,488,892	45.90%	985	\$55,275
<b>Xi'an (西安)</b>	6,501,189	2,588,987	39.82%	774	\$34,834
<b>Shenyang (沈阳)</b>	6,255,921	3,981,023	63.64%	554	\$59,540
<b>Fuzhou (福州)</b>	2,824,414	1,172,219	41.50%	494	\$40,815
<b>Averages</b>	9,783,041	4,313,605	45.17%	2907	\$68,814

# Local vs Migrant HH Characteristics



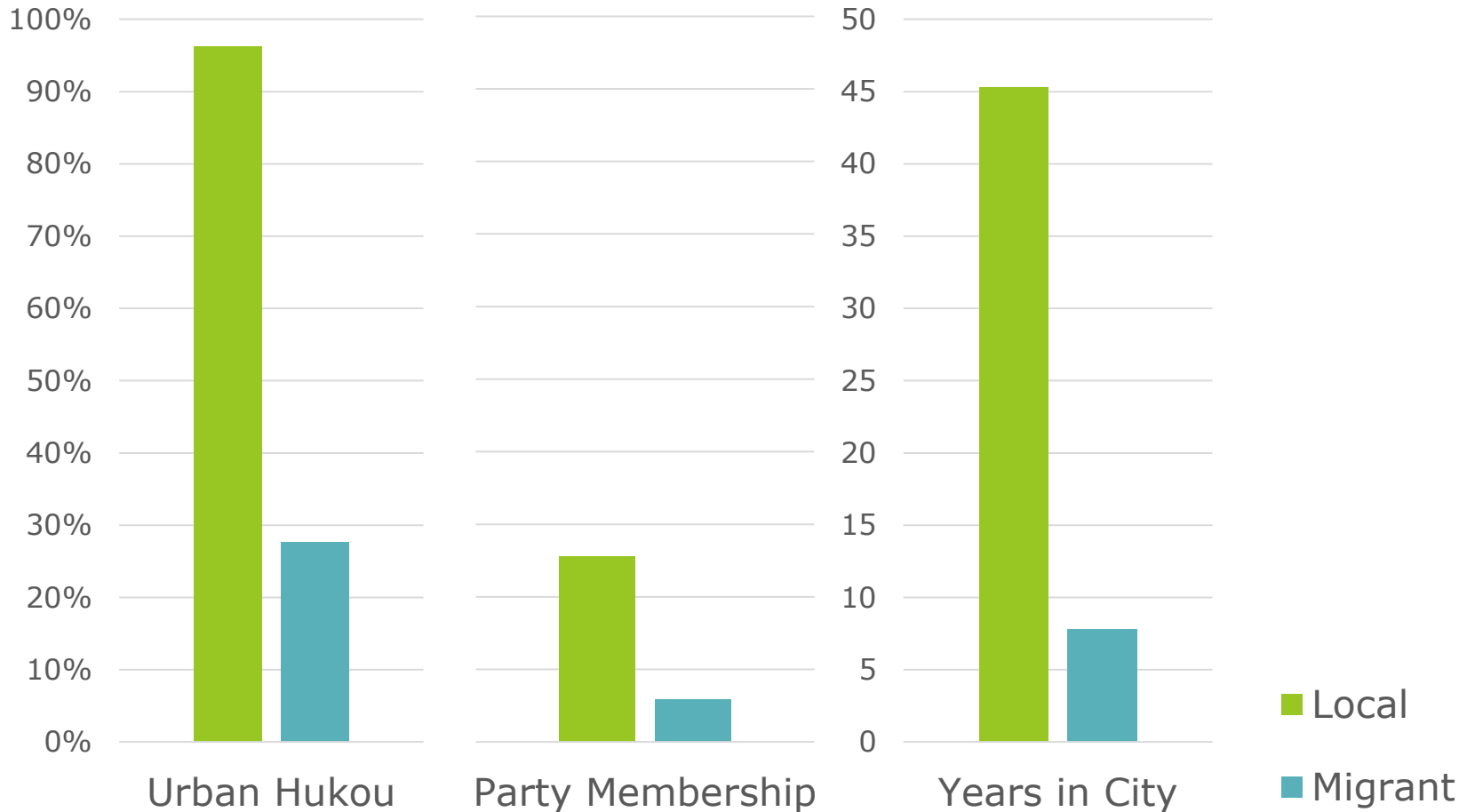
- Local  
Head Age = 53.5  
HH size = 2.9
- Migrant  
Head Age = 36.6  
HH size = 2.2

# Local vs Migrant Socioeconomic Characteristics

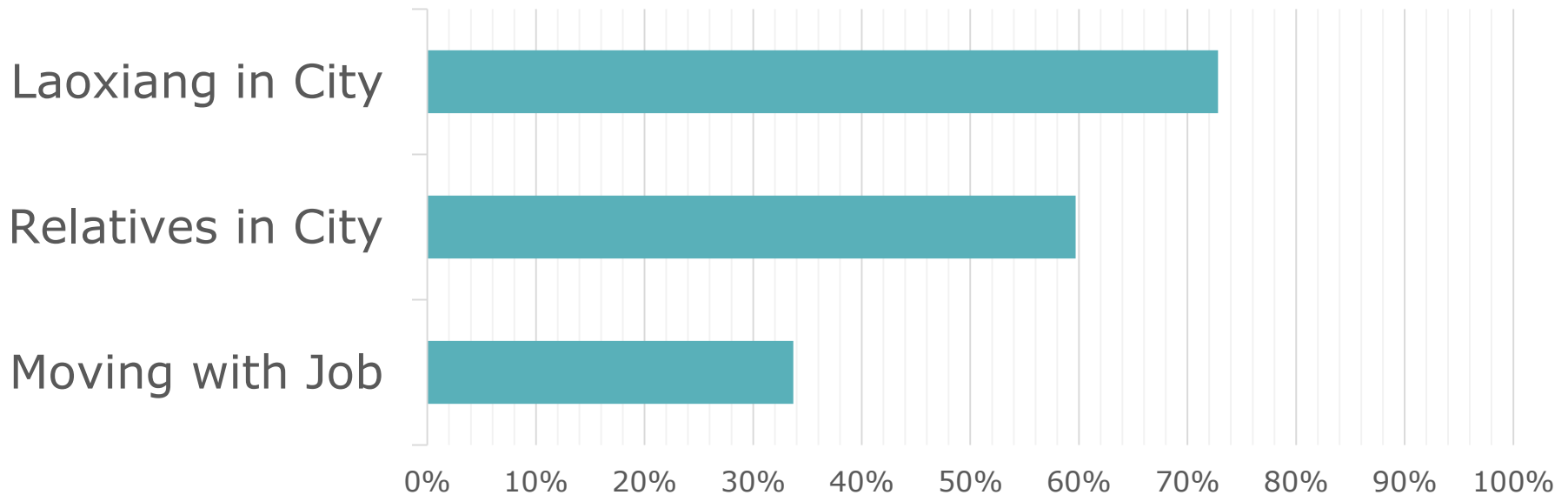


- Although local and migrant households have similar educational levels, income levels and the majority have male heads, migrant households tend to...
  - **be much younger**
  - **have smaller HH size**
  - **not live with their spouse**
  - **not own homes**

# Local vs Migrant Institutional Factors

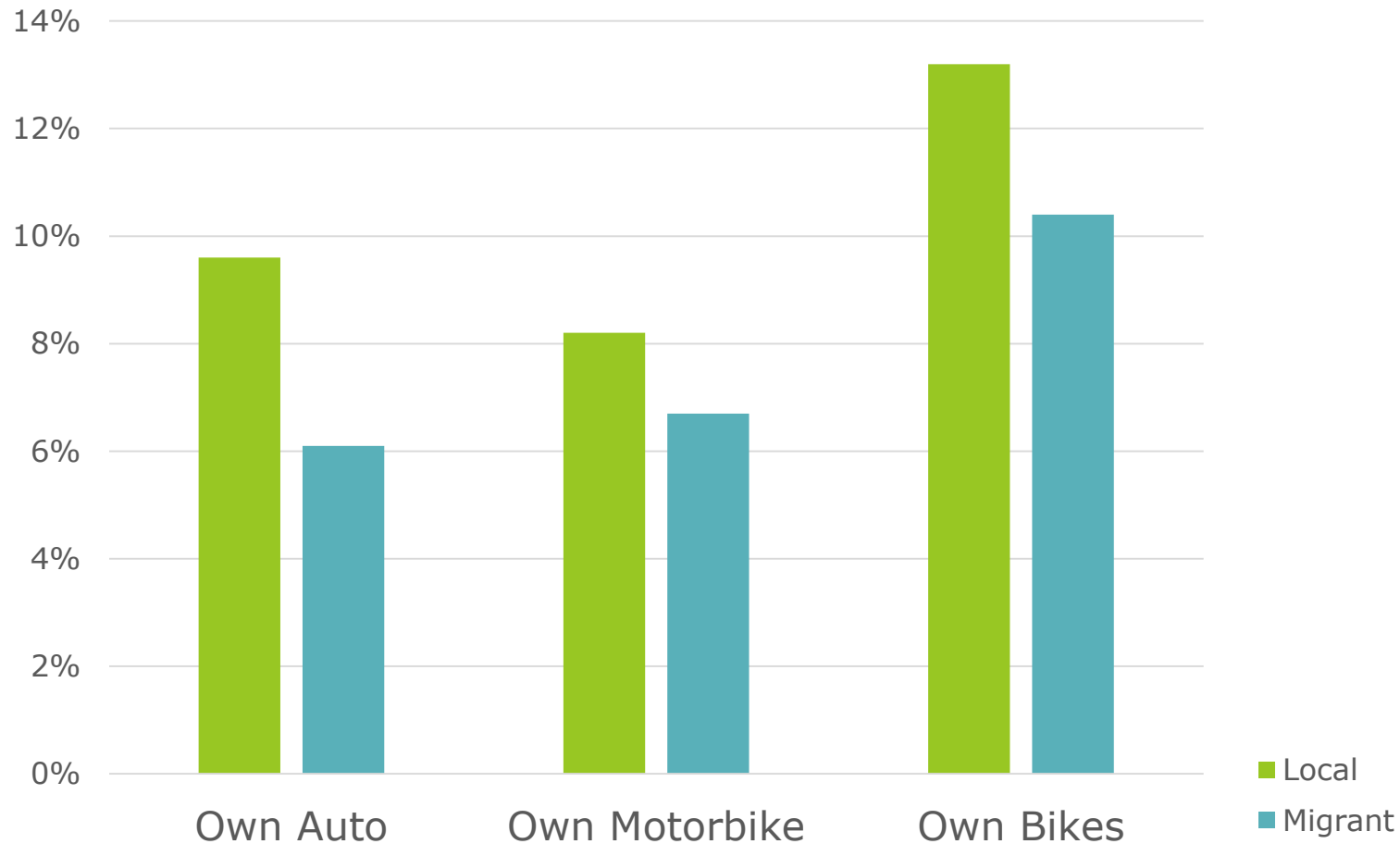


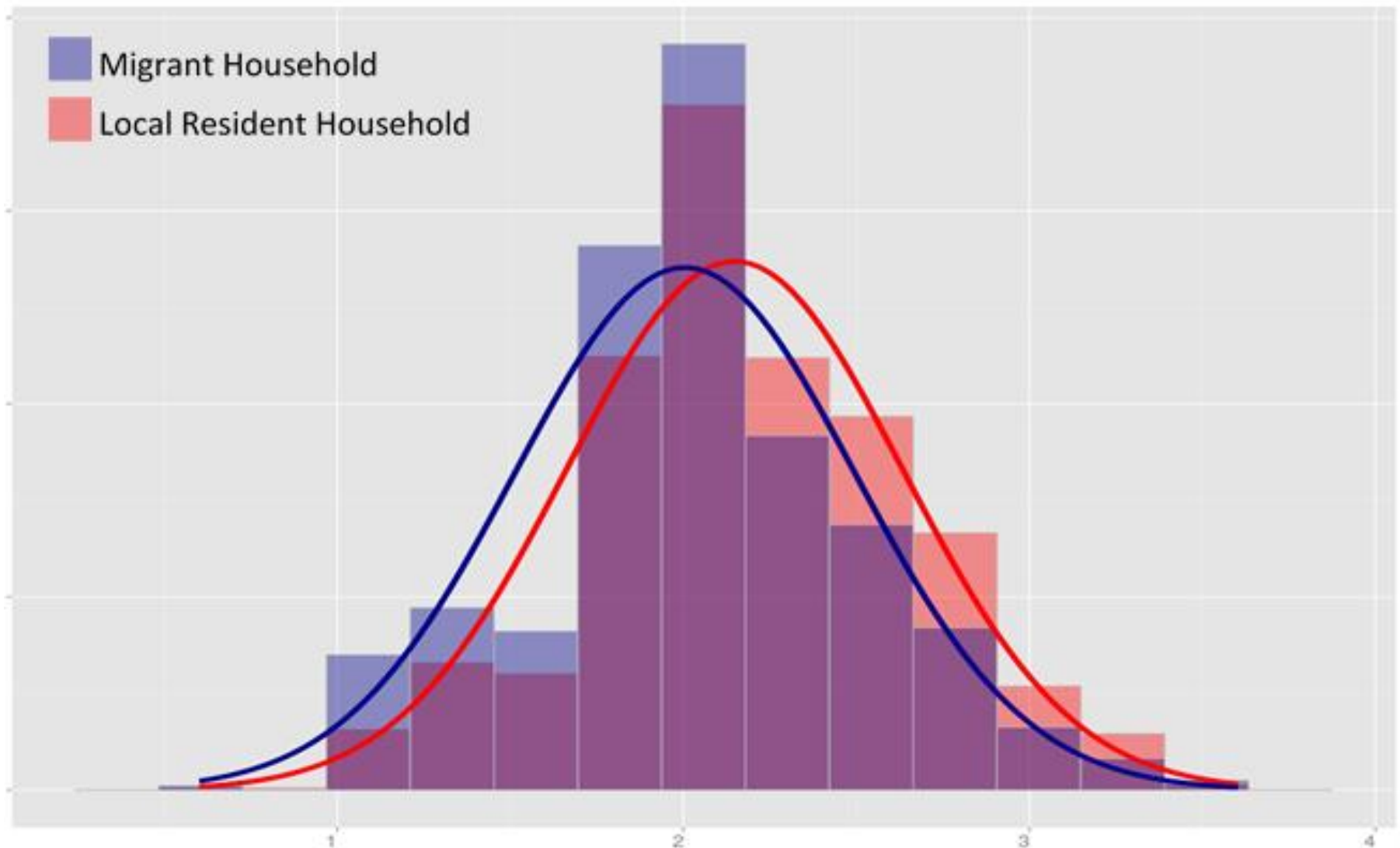
# Migrant Household Social Networks





# Local vs Migrant Transportation





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Household Monthly Transportation Expenditure (log)

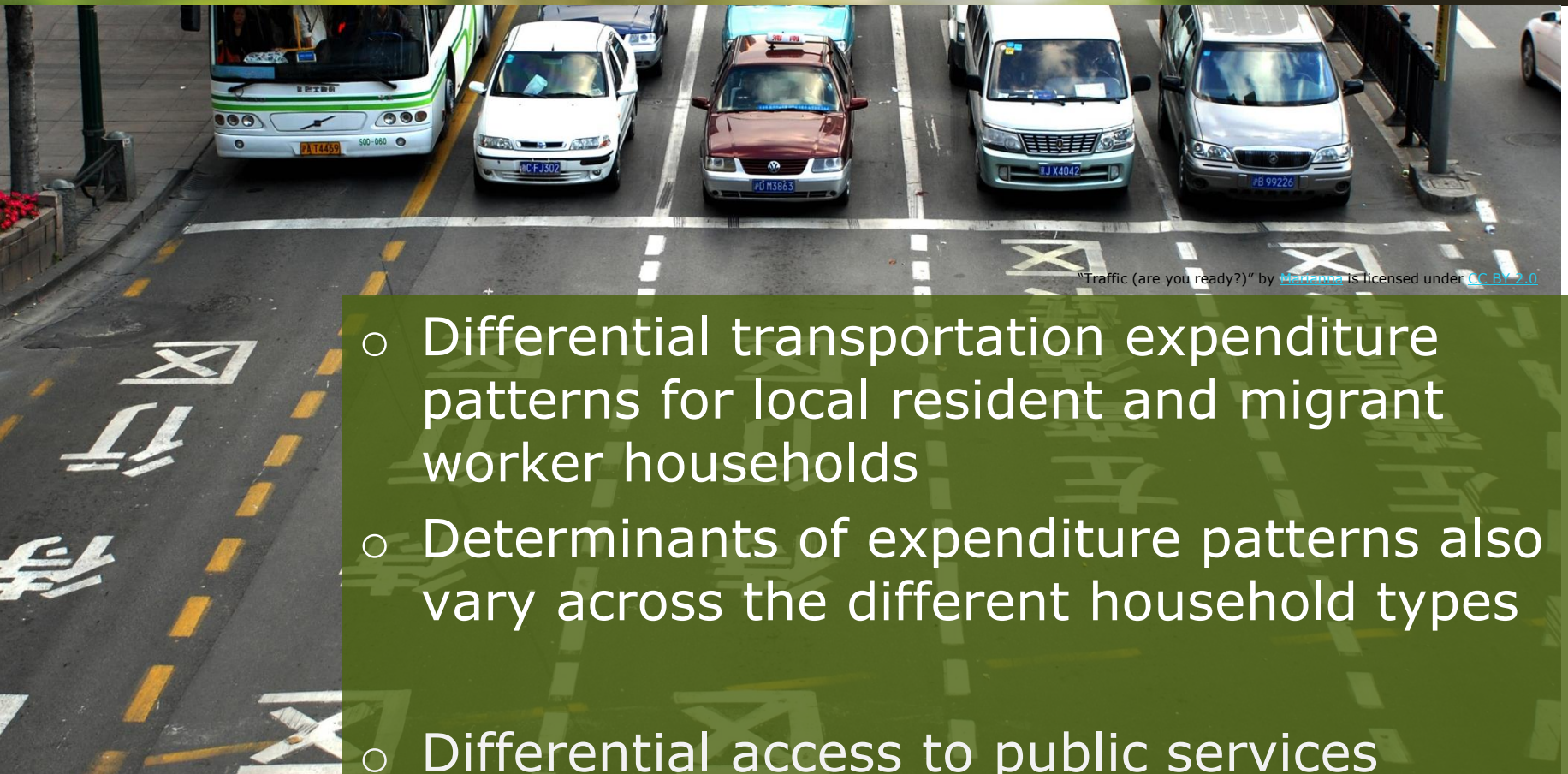
# Monthly Household Transportation Expenditures

City	Local HH Transportation Expenditure	Migrant HH Transportation Expenditure
<b>Shanghai (上海)</b>	265.6	244.2
<b>Guangzhou (广州)</b>	371.7	307.8
<b>Wuhan (武汉)</b>	229.3	91.7
<b>Xi'an (西安)</b>	130.9	117.2
<b>Shenyang (沈阳)</b>	105.5	101.3
<b>Fuzhou (福州)</b>	217.2	129.3
<b>Averages</b>	<b>218.9</b>	<b>164.7</b>

- **HH income and car ownership** are largest determinants of transportation expenditures
- *Hukou* status only significant for migrant HHs
- Strong social networks **lower** transportation spending for migrants

Dependent Variable = Log Transportation Expenditure	Local Model IV		Migrant Model IV	
	$\beta$	Beta	$\beta$	Beta
<b>Household Characteristics</b>				
HH size	0.082***	0.065***	0.023	0.021
Head age	-0.012***	-0.102***	-0.006	-0.046
Head gender (1 = male)	0.037	0.014	-0.012	-0.005
Head years in school	0.024***	0.065***	0.033***	0.094***
Marital status (1 = married)	-0.007	-0.002	-0.034	-0.013
Children (1 = yes)	-0.066	-0.03	0.017	0.007
HH income (log)	0.494***	0.34***	0.555***	0.372***
HH <i>hukou</i> nature (1 = urban)	0.003	0.001	0.199***	0.08***
Years in city	0.002	0.026	-0.003	-0.015
Food expenditures (% of HH income)	0.003***	0.116***	0.229***	0.079***
Communist party member	0.073	0.026	0.072	0.015
Relative in city			-0.092	-0.039
<i>Laoxiang</i> in city			-0.154**	-0.057**
<b>Vehicle Ownership Characteristics</b>				
Own car	1.053***	0.352***	1.185***	0.294***
Own motorbike	0.04	0.011	0.226**	0.051**
Own high-end bike	0	0	-0.235**	-0.056**
Constant		-0.671		-1.851***
R-squared		0.482		0.522

\*\*\* statistically significant at 1%; \*\* statistically significant at 5%; \* statistically significant at 10%  
City-level fixed effects and employment categories omitted for space here.







# Thank you!

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Variable	Shanghai (上海)		Guangzhou (广州)		Wuhan (武汉)		Xi'an (西安)		Shenyang (沈阳)		Fuzhou (福州)		Averages	
	Local	Migrant	Local	Migrant	Local	Migrant	Local	Migrant	Local	Migrant	Local	Migrant	Local	Migrant
<b>Demographic</b>														
Head age	57.4	36.0	50.5	36.8	52.7	37.2	54.0	38.7	54.8	36.0	51.6	34.7	53.5	36.6
% married	81.9%	75.3%	82.1%	73.5%	87.0%	76.2%	81.5%	77.6%	78.2%	60.4%	81.5%	60.9%	82.0%	70.6%
% living with spouse	81.0%	62.2%	80.1%	62.5%	84.9%	62.2%	80.0%	65.2%	76.5%	51.5%	77.1%	45.5%	79.9%	58.1%
% male head	52.4%	54.2%	72.6%	73.0%	66.7%	64.5%	66.0%	73.4%	78.8%	72.4%	76.4%	61.0%	68.9%	66.4%
HH size	2.7	2.2	3.1	2.5	3.2	2.3	2.7	2.4	2.7	2.0	2.8	1.9	2.9	2.2
<b>Socioeconomic</b>														
Head years in school	10.6	10.9	11.4	11.1	11.4	9.7	11.5	10.4	10.4	10.4	11.5	11.1	11.1	10.6
Head annual income (RMB)	37,643	40,821	53,830	58,500	28,333	22,548	23,161	21,408	24,139	24,117	36,268	29,714	33,983	32,654
HH annual income (RMB)	65,202	67,015	81,824	88,360	47,629	36,668	40,079	34,141	34,398	34,200	53,326	40,881	53,777	50,295
% own home	86.9%	7.7%	83.4%	30.2%	75.4%	7.2%	68.8%	14.2%	84.9%	8.0%	85.1%	3.5%	80.7%	11.7%
<b>Work &amp; Social Network</b>														
% with work contract in place	28.1%	41.7%	28.1%	31.0%	27.6%	17.2%	28.0%	20.3%	12.8%	13.7%	19.5%	27.4%	24.0%	25.2%
% working in State-owned work unit	19.0%	11.3%	24.6%	10.0%	35.1%	4.7%	33.9%	14.3%	23.2%	6.8%	27.5%	8.3%	27.2%	9.2%
% moving to city with job		34.7%		41.0%		37.3%		31.3%		32.7%		25.3%		33.7%
% with relative in same city		57.3%		68.0%		68.3%		53.0%		51.3%		60.6%		59.7%
% with <i>laoxiang</i> in same city		81.8%		84.3%		84.8%		74.2%		50.0%		62.2%		72.8%
<b>Institutional Status</b>														
% with urban <i>hukou</i>	96.3%	36.2%	92.1%	34.0%	99.1%	5.2%	95.5%	24.0%	97.9%	34.8%	96.2%	31.2%	96.2%	27.6%
% with party membership	23.4%	7.2%	19.6%	5.0%	34.4%	3.2%	28.3%	7.0%	23.7%	4.8%	24.5%	7.5%	25.6%	5.8%
Years lived in city	51.7	7.9	40.7	9.0	44.8	8.8	45.8	8.1	47.7	5.9	40.9	6.8	45.3	7.8
<b>Transportation</b>														
% own automobiles	6.4%	9.3%	16.0%	11.0%	8.6%	2.3%	6.6%	6.5%	4.1%	3.0%	15.9%	4.4%	9.6%	6.1%
% own motorbikes	3.4%	3.7%	5.6%	3.5%	7.1%	7.3%	5.6%	6.3%	2.4%	4.5%	24.7%	14.4%	8.2%	6.7%
% own high-end bikes	7.4%	6.7%	11.6%	11.7%	10.3%	6.2%	7.8%	7.1%	4.5%	4.6%	37.4%	25.8%	13.2%	10.4%
HH monthly transportation expenditure (RMB)	265.6	244.2	371.7	307.8	229.3	91.7	130.9	117.2	105.5	101.3	217.2	129.3	218.9	164.7
<b>Sample Size (n)</b>	700	600	700	600	700	600	729	617	716	604	728	616	Total Sample Size	
													4273	3637